

IN THE CLAIMS:

All of the pending claims 1-3, 63, and 64 are set forth below. The status of each claim is indicated with one of (currently amended), (previously presented) or (cancelled). Please CANCEL claim 15 without prejudice or disclaimer. Please AMEND claims 1 and 64 in accordance with the following:

1. (currently amended) A method for optical transmission adopting dispersion compensation, comprising:

(a) providing an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range, said plurality of segments including a plurality of fiber types, and an optical fiber having a specific one of the optical fiber types being applied to at least one of said plurality of segments;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent ones of said segments;

(e) determining where said specific one of the optical fiber types exists in the optical transmission line; ~~and~~

(f) providing a dispersion compensator responsive to said determination, in each of said optical transmitter, said optical receiver, and said optical amplifier at least according to whether an optical fiber type of an optical fiber transmission line segment immediately downstream of said optical transmitter is said specific one of the optical fiber types or not and a dispersion value of said optical fiber transmission line segment immediately downstream of said transmitter, at least according to whether an optical fiber type of an optical fiber transmission line segment immediately upstream of said optical receiver is said specific one of the optical fiber types or not and a dispersion value of said optical fiber transmission line segment immediately upstream of said optical receiver, and at least according to whether an optical fiber type of an optical fiber transmission line segment immediately upstream of said optical amplifier is said specific one of the optical fiber types or not and dispersion values of optical fiber transmission line segments immediately upstream and downstream of said optical amplifier; and

(g) omitting a dispersion compensator in at least one of said optical transmitter, said optical receiver and said optical amplifier which locates immediately upstream or downstream of

an optical fiber transmission segment whose optical fiber type is said specific one of the optical fiber types; wherein,

~~at least one a~~ dispersion compensator provided in ~~at least one of said optical transmitter, said optical receiver and~~ said optical amplifier provides a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range.

2. (previously presented) A method according to claim 1, wherein said fiber types of said optical fiber transmission line include a single-mode fiber type having a zero-dispersion wavelength of about $1.3\ \mu\text{m}$ and a dispersion shifted fiber type having a zero-dispersion wavelength of about $1.55\ \mu\text{m}$.

3. (previously presented) A method according to claim 2, further comprising:
providing a plurality of optical amplifiers, wherein,
said dispersion compensator is not provided in said optical transmitter in a case wherean optical fiber type of an optical fiber transmission line segment immediately downstream of said optical transmitter is said specific one of the optical fiber types and is said dispersion shifted fiber type;

a dispersion of a dispersion compensator provided in one of said plurality of optical amplifiers is determined according to dispersion values of optical fiber transmission line segments immediately upstream and downstream of the optical amplifier; and

an optical fiber type of an optical fiber transmission line segment immediately upstream of the optical amplifier is said dispersion shifted fiber type and an optical fiber type of an optical fiber transmission line segment immediately downstream of the optical amplifier is said single-mode fiber type.

4-62. (cancelled)

63. (previously presented) A method according to claim 2, further comprising:
providing a plurality of optical amplifiers, wherein,
said dispersion compensator is not provided in said optical receiver in a case where an optical fiber type of an optical fiber transmission line segment immediately upstream of said optical receiver is said specific one of the optical fiber types and is said dispersion shifted fiber type;

a dispersion of a dispersion compensator provided in one of said plurality of optical

amplifiers is determined according to dispersion values of optical fiber transmission line segments immediately upstream and downstream of the optical amplifier; and

an optical fiber type of an optical fiber transmission line segment immediately upstream of the optical amplifier is said single-mode fiber type and an optical fiber type of an optical fiber transmission line segment immediately downstream of the optical amplifier is said dispersion shifted fiber type.

64. (currently amended). A method according to claim 2, further comprising:
providing a plurality of optical amplifiers, wherein,
a dispersion compensator is ~~not provided~~ omitted in a first optical amplifier in a case where an optical fiber type of an optical fiber transmission line segment immediately upstream of the first optical amplifier is said specific one of the optical fiber types and is said dispersion shifted fiber type;

a dispersion of a dispersion compensator provided in a second optical amplifier is determined according to dispersion values of optical fiber transmission line segments immediately upstream and downstream of the second optical amplifier; and

an optical fiber type of an optical fiber transmission line segment immediately upstream of the second optical amplifier is said single-mode fiber type and an optical fiber type of an optical fiber transmission line segment immediately downstream of the second optical amplifier is said dispersion shifted fiber type.